STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

UPLAND FIN–FISH HATCHING AND REARING GENERAL PERMIT
FACT SHEET

This fact sheet is a companion document to the draft National Pollutant Discharge Elimination System (NPDES) General Permit for Upland Fin–fish Hatching and Rearing Facilities. The Department of Ecology (the Department) is proposing to issue this permit, which will allow discharge of wastewater to waters of the state of Washington by the facilities covered under this permit.

This fact sheet explains the nature of the proposed discharge, the Department's decisions on limiting the pollutants in the wastewater, and the regulatory and technical basis for those decisions. Public involvement information is contained in Appendix A. Definitions are included in Appendix B.

GENERAL INFORMATION

Upland Fin-fish hatching and rearing facilities are defined as facilities in which Fin-fish are hatched, fed, nurtured, held, maintained or reared to reach the size of release or for market sale and are not located within waters of the state. This includes fish hatcheries, rearing ponds, spawning channels, and other similarly constructed or fabricated public or private facilities.

This permit includes technology-based effluent limits and other permit conditions that have been determined to meet both the state requirement for "all known, available, and reasonable treatment" (RCW 90.48.010 and RCW 90.54.020) and the federal requirement for best conventional pollutant control technology (BCT).

All applications for coverage under this general permit will be evaluated to ensure compliance with state water quality standards (Chapter 173-201A and 173-200 WAC) and state wastewater discharge standards and effluent limitations for these facilities (Chapter 173-221A). Facilities which require more stringent effluent limits or other special conditions than those contained in this general permit in order to meet state water quality standards will need to obtain coverage under an individual permit.

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BACKGROUND INFORMATION

DESCRIPTION OF THE INDUSTRY

The State Department of Fish and Wildlife (Fish and Wildlife) operated approximately 74 facilities and private industry operated another 12 facilities, which were covered under the 1995 version of this permit. The number of facilities covered by this general permit has remained relatively constant over the past ten years. The mission of these facilities can range from public or tribal enhancement facilities to private enterprises running growout operations.

Industrial Process

Upland Fin-fish hatching and rearing facilities can have a wide variety of rearing pond configurations including lined or unlined ponds, raceways, and circular ponds in which fish are held for culturing purposes. On a daily basis the operators of these facilities give the fish a predetermined ration of pelletized fish food by hand feeding and/or mechanical means to promote growth. Once the fish attain the targeted size they are either released, harvested, or kept as brood stock.

Fish and Wildlife facilities raise and release fish for enhancement purposes. The main methods of removing the fish from the ponds for a release can be by the use of fish pumps or dip nets. The most common method of moving the fish to a release site is by trucking them in fish holding tanks or by allowing them access into piping which will carry them to the adjacent receiving water.

Another type of fish release method used by Fish and Wildlife is referred to as the volitional release. This method is initiated by the removal of the pond screen at the outfall of a rearing pond so the bulk of the fish can leave on their own. At the end of a volitional release the remaining fish are crowded out of the pond through the use of moveable screens or nets.

Private facilities produce and sell eggs, fry, and/or market-sized fish. These facilities move the fish out of the rearing ponds by the use of fish pumps or dip nets for harvest or for live transport to other rearing facilities. At this time, these facilities are not designed to release fish.

The wastewater treatment processes for these facilities are classified into three types: offline settling basins, flow through settling basins, and rearing pond culture (facilities which have a minimum of two hours of hydraulic retention time). Offline settling basins were used at 45 percent of the facilities, which obtained coverage under the previous permit. Rearing pond culture systems were also used at a similar amount of the facilities. The remaining 10% of the permitted facilities used flow through settling basins.

Over half of the pond cleaning wastewater destined for an offline settling basin is created from the use of a vacuum cleaning system to remove the solids from the bottom of the rearing ponds.

At this time, suction (trash) water pumps are used at more than half of these facilities and venturi pumps are used at about a third of them. The least common method for removing the solids from the ponds is by brooming the wastes off the pond bottom and letting the current carry the resuspended material into a bottom-drain system which is connected to the offline settling basin.

Facilities, which lack an offline settling basin, remove the accumulated solids for disposal onto adjacent fields or at a landfill by using pumps, front end loaders, and/or shovels.

Discharge

Wastes generated as a result of the operation of these facilities include: fish fecal matter, uneaten fish food, fish mortalities, fish carcasses resulting from spawning operations, and medications and disease control chemicals used in the hatching and rearing of fish. Other wastes found at these facilities include sand, silt, and other debris, which has settled out of the facilities source waters.

PREVIOUS PERMIT LIMITATIONS AND CONDITIONS

The previous general permit for these facilities was issued on February 3, 1995. The permit placed effluent limitations on settleable and total suspended solids from general hatchery and rearing pond discharges, offline settling basin discharges, and pond drawdown for fish release discharges. Following are the tables depicting those limits.

Table 1. Raceways and Rearing Ponds

	Monthly Average	Maximum Daily	Monitoring Frequency
Total Suspended Solids (mg/L)	5.0	15.0	1/month
Total Settleable Solids (ml/L)	0.1	--	1/week

Table 2. Offline Settling Basins			
	Monthly Average	Maximum Daily	Monitoring Frequency
Total Suspended Solids (mg/L)	85% Removal	100	1/quarter
Total Settleable Solids (ml/L)	90% Removal	1.0	1/week

Table 3. Pond Drawdown for Fish Release Discharges		
	Maximum Daily	Monitoring Frequency
Total Suspended Solids (mg/L)	100	1/drawdown
Total Settleable Solids (ml/L)	1.0	1/drawdown

The permit limited the use of drugs, medications, or chemicals (disease control chemicals) to those approved for aquaculture use by the United States Food and Drug Administration. The permit required that the use of drugs, medications, or chemicals were to be reported to the Department quarterly. These reports included information on the active ingredient; the undiluted active ingredient concentration, and the trade name of the applied antibiotic, drug, disease control chemical, or disinfectant. Also required was information on the treatment concentration of the active ingredient, duration of treatment, total amount of ingredient used, and the estimated concentration of the active ingredient in the hatchery or rearing facility effluent.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

During the history of the previous general permit, compliance based on the Discharge Monitoring Reports (DMRs) received and on the results of site inspections conducted by the Department was mixed. Violations of DMR reporting requirements, effluent limitations and percent removal requirements were documented.

The most common permit conditions that were violated were for the failure to report flows and effluent limits on DMRs. Effluent limit exceedances were the second most common violation with total suspended solids being discharged from the offline settling basin as high as 712 mg/L. Failure to meet the required percent removal efficiencies was a less frequent occurrence.

WASTEWATER CHARACTERIZATION

The wastewater discharge from these facilities can come from two related but separate sources: the rearing portion of the facility (rearing ponds and raceways), and the offline settling basin.

Rearing Pond and Raceway Discharges

The rearing pond and raceway wastewater contains some organic solid wastes that consist of uneaten food and fecal material. The quantity of these wastes depends upon the volume of fish food being fed, the pounds of fish, and the amount of waste that settles out of the water prior to its discharge.

Offline Settling Basin Discharges

The offline settling basin wastewater contains resuspended organic solids created when the bottom of the rearing ponds are cleaned through the use of a vacuum system or by sweeping to a bottom-drain system. The organic solids consist of fish food, fecal material, and other debris, which settled out of the facility's water source.

Pollutants of Concern

The main pollutants of concern in the effluent are the total suspended solids (TSS) and the settleable solids (SS). These pollutants are explicitly addressed in the permit with limits and conditions which follow the state wastewater discharge standards and effluent limitations for these pollutants (WAC 173-221A-100).

Other pollutants of concern that may be found in the discharge from these facilities are: BOD_5, nutrients, low dissolved oxygen, temperature, and disease control chemicals.

The pollutants BOD_5 and nutrients are present in the discharge from these facilities in low concentrations. Because of the solids removal, the Department has determined that the discharge from these facilities poses a very low possibility of causing a water quality violation.

The disease control chemicals used at these facilities are also considered by the Department to be pollutants of concern. These chemicals are used to treat both internal and external fish diseases and to prevent the spread of disease at or between facilities. The permit limits the use of these chemicals. The permit also prohibits the discharge of these chemicals in concentrations which would exceed federal or state water quality standards and requires that BMPs be used to minimize the concentration of these chemicals in the facilities discharge. These chemicals include the following:

Internal Control	**External Control**	**Disinfectants/Other**
Amoxicillin	Acetic Acid	Chlorine
Terramycin (OTC)	Buffered Iodophor	Iodophor
Epsom Salts	Chloramine-T	MS-222
Erythromycin	Formalin	Quaternary Ammonia
Romet 30	Hydrogen Peroxide	Sodium Thiosulfate

All of these disease control chemicals are administered at known concentrations for their therapeutic or disease prevention effect.

PROPOSED PERMIT LIMITATIONS AND CONDITIONS

Federal and State regulations require that effluent limitations set forth in an NPDES permit must be either technology or water quality-based. Technology-based limitations are based upon the treatment methods available to treat specific wastewater. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR, and Chapter 173-220 WAC). Water quality-based limitations are based upon compliance with the Water Quality Standards (Chapter 173-201A WAC). The more stringent of these two limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

Background

In 1974, EPA released a "draft development document for effluent limitations guidelines for fish hatcheries and farms," for public review

In 1984, EPA Region 10 contracted with JRB Associates for a study of Idaho trout facilities. The study recommended effluent limitations, which would represent best conventional pollutant control technology (BCT).

NPDES permits for upland Fin-fish hatching and rearing facilities issued in Washington before 1984 were based primarily on the EPA draft development document released in 1974. Permits issued after 1984 in Washington generally followed the effluent recommendations in the 1984 EPA/JRB Idaho fish hatchery study.

In 1990, the Department established all known, available, and reasonable methods of treatment (AKART) for these facilities through the adoption of standards for upland Fin-fish facilities, Chapter 173-221A WAC, Wastewater Discharge Standards and Effluent Limitations. The regulation was amended in October 1995. The most significant regulatory change was made to acknowledge the wide-spread and commonly accepted extra-label use of drugs and chemicals.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Technology-based effluent limitations have been established for this industry through the adoption of Chapter 173-221A WAC. This regulation contains both wastewater discharge standards and design criteria for wastewater treatment systems. This permit contains the same effluent limitations which have been adopted for this industry (Chapter 173-221A WAC). Design criteria for wastewater treatment systems are not in the permit but are contained in the regulation covering this industry. Following are the wastewater discharge performance standards:

Rearing Pond Discharges	Limit

Instantaneous Maximum Total Suspended Solids	15 mg/L
Average Monthly Total Suspended Solids Concentration	5 mg/L
Average Monthly Settleable Solids Concentration	0.1 ml/L

Offline Settling Basin Discharges and Rearing Pond Drawdown for Fish Release Discharges

Instantaneous Maximum Total Suspended Solids	100 mg/L
Instantaneous Maximum Settleable Solids	1.0 ml/L

The regulation also requires an offline settling basin to have a minimum total suspended solids average monthly percent removal of 85 percent, and an average monthly settleable solids percent removal of 90 percent.

This permit contains the effluent limits found in Chapter 173-221A WAC. This permit also requires facilities to review their pollution prevention plan within six months of when permit coverage was granted and update the plan whenever necessary. The review, implementation, and updating of the pollution prevention plan will provide further reductions in the amount of solids discharged, prevent spills, and have procedures developed for responding to a spill.

This permit also proposes a prohibition on the discharge of Atlantic salmon into freshwater surface waters of the state. This prohibition was based in part on the May 1997 Pollution Control Hearings Board ruling that Atlantic salmon are a biological pollutant. Additionally, it is known that juvenile Atlantic salmon have been trapped by the Department of Fish and Wildlife in both Scatter Creek and the Chehalis River downstream of permitted upland Fin-fish hatching and rearing facilities raising Atlantic salmon. The Department of Fish and Wildlife has expressed concerns to Ecology that Atlantic salmon fry and juvenile fish may cause ecological disruption if released to freshwater. The technology available to eliminate the inadvertent release of Atlantic salmon is screening the facility effluent. Screening is relatively inexpensive and commercially available. The Department believes that a precautionary stance in regards to the inadvertent release of Atlantic salmon is a reasonable step to prevent the establishment of this exotic species in our state waters. This new requirement will only impact a few permitted facilities statewide. It should be noted that WAC 232-12-271 also prohibits the release of exotic species into the state without a permit from the Director of the Washington State Department of Fish and Wildlife.

Facilities that are not required to apply for and receive an Upland Fin-Fish Hatching and Rearing NPDES General Permit from the Department are still obligated to meet the effluent standards of WAC 173-221A-100(1)(b) and WAC 173-221A-100(4).

WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Water Quality Standards. The Washington State Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the waters of the state.

Numerical Criteria

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality standards (Chapter 173-201A WAC), which specify the allowable levels of pollutants in a receiving water. Numerical criteria for dissolved oxygen and turbidity are among the criteria contained in WAC 173-201A-030. Numerical criteria are also listed for many toxic substances including chlorine and ammonia (WAC 173-201A-040).

Numeric criteria set forth in the Water Quality Standards are used to derive the effluent limits in a discharge permit. When water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

Narrative Criteria

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) are used to limit acute and chronic toxicity, radioactivity, and other deleterious materials, and prohibit the impairment of the aesthetic value of the waters of the state. Narrative criteria describe the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the State of Washington.

Antidegradation Policy

The State of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-2 01A-070.

Mixing Zones

The Water Quality Standards allow the Department of Ecology to authorize mixing zones around a point of discharge in establishing, water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment at the point of discharge. The concentration of pollutants at the edge of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention and control (AKART).

Toxic Pollutants

Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are

not exempted from meeting the Water Quality Standards or from having water quality-based effluent limits.

Some of the disease control chemicals used at these facilities are classified as toxic pollutants. The Department has determined that when these chemicals are used according to USFDA requirements, they pose no reasonable potential to violate federal or state water quality standards.

Disease Control Chemicals

The disease control chemicals used at these facilities are administered for the internal and external control of fish diseases and also to disinfect facility tools, rearing ponds, or source waters to prevent the spread of these diseases. The discharge concentration of these chemicals should not cause receiving water toxicity if the use is consistent with product labels, USFDA regulations, and the permit requirement mandating Permittees to follow BMPs to dilute the treatment concentrations with other hatchery flows. The Department has determined that the use of BMPs will meet AKART for this pollutant.

Following the issuance of the previous permit, a document entitled, "Approval of Disease Control Chemical Use Under The Department of Ecology's General Permit for Upland Fin-fish Hatching and Rearing Facilities." This document authorized the use of non-emergency and emergency extra-label drug and chemical use without the prior approval of Ecology. In October 1995, Chapter 173-221A WAC was amended to specifically allow the extra-label use of disease control drugs and chemicals if the drugs and chemicals are administered by or under the supervision of a licensed veterinarian and approved in advance by Ecology.

This permit has adopted the conditions in the document and has incorporated them into S5.B. The Department recognizes that there are many situations where extra-label disease control drug and chemical use could occur with little reasonable potential to impact water quality. The Department also recognizes that an epizootic disease outbreak may require extraordinary measures to save the fish. Epizootic disease outbreaks may require the extra-label use of a drug or chemical or the use of a drug or chemical that is not approved by the United States Food and Drug Administration or United States Environmental Protection Agency. The Department will require 24 hour prior notification for emergency drug and chemical use. The method and quantity of disposed disease control drugs and chemicals now must be detailed in the facility's operational log.

Human Health

The only pollutants known to have the potential to impact human health are the disease control chemicals. Because the fish are raised for eventual human consumption, the USFDA also regulates the use of these chemicals. The permit allows the permittees to use USFDA approved disease control chemicals only if they are used according to the product label. The permit also prohibits the discharge of these chemicals in concentrations which would exceed federal or state water quality standards and requires that BMPs be used to minimize the concentration of these chemicals in the facilities discharge.

Ground Water Quality

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect beneficial uses of ground water. The Department has determined that a properly operated upland Fin-fish hatching and rearing facility poses little potential to impact state ground water standards. This permit does not authorize a violation of these standards. The Department will require facilities with the potential to violate these standards to obtain coverage under an individual permit and/or require rearing and pollution abatement ponds to be lined if necessary.

Temperature and Dissolved Oxygen

The pollutants of concern in the first version of this permit were temperature and dissolved oxygen. The concern was raised in a 1988 study by the Department on the "Quality and Fate of Fish Hatchery Effluents During the Summer Low Flow Season." These parameters were monitored at each facility during their first year of coverage. The results of this monitoring showed that these facilities do not have a reasonable potential to exceed these parameters. Based upon this information, the Department has determined that further monitoring of these parameters is not warranted.

COMPARISON OF EFFLUENT LIMITS WITH THE PREVIOUS PERMIT

The effluent limits for total suspended and settleable solids in the draft permit are the same as the permit issued in 1995. However, the minimum percent removal standard promulgated in Chapter 173-221A WAC has been deleted from the draft permit as a monitoring requirement. The Department does not view this change as backsliding for the following reasons.

While this standard is still in effect, this permit has eliminated the requirement for settleable solid and total suspended solid percent removal calculation and reporting. It is felt that the percent removal was so completely dependent on the timing of sample collection that the removal efficiencies were difficult to quantify. For example, a sample of the influent to the offline settling basin would be expected to have large loading of solids from the bottom of the raceways. However, the effluent from the offline settling basin that initially discharges would not represent the solids removal from the influent wastewater. This type of sampling scenario is more representative of the solids removed since the previous batch of wastewater was discharged into the offline settling basin.

Additionally, since the offline settling basins discharge intermittently, it is difficult to reliably calculate percent removals based on concentration. The rainfall on the Olympic Peninsula can add 100 inches of dilution water a year to the basins. In Eastern Washington, evaporation can substantially concentrate the effluent. Unlined settling basins can allow water to escape into the ground, biasing results. Hence, percent removals are most accurately calculated in this situation based on loadings rather than concentrations. In order to do so, composite samplers would have to be set up to sample both the influent and effluent and flows both into and out of the basins would have to be accurately measured. The Department feels the cost of this sampling would be prohibitive. Furthermore, since all the basins have been properly designed for adequate hydraulic retention times, the minimum average monthly percent removals of 85% for total

suspended solids and 90% for settleable solids required in Chapter 173-221A WAC will be achieved.

MONITORING AND REPORTING

Effluent monitoring, recording, and reporting are required (WAC 173-226-090) to verify the treatment process is functioning correctly and the effluent limitations are being achieved.

The previous permit contained effluent monitoring requirements to calculate settleable solids percent removal and total suspended solids percent removal. As discussed previously, it was felt that accurate percent removal efficiencies are difficult to calculate given the inherent bias of grab samples and concentration-based results used in this general permit for the offline settling basins. The Department feels that since the offline settling basins were designed to meet the removal efficiency and hydraulic retention standards, it is more important to monitor the quality of the effluent leaving the settling basins. Therefore, while calculating the percent removal for settleable and total suspended solids has been eliminated for the offline settling basins, sampling for total suspended solids was increased from quarterly to monthly. The Department feels the increase is justified because the solids entering the receiving water from the offline settling basins is the most important indicator of a hatchery's environmental performance. This change is consistent with the original monitoring schedule in the initial permit.

The previous permit required permittees to monitor total residual chlorine in rearing vessel disinfection water and that all disinfection water be neutralized in such a manner that no chlorine residual be detected. The previous permit specified two methods to detect residual chlorine, Amperometric Titration and a constant bioassay. Therefore, this draft replaces the bioassay with an inexpensive DPD colormetric field test for chlorine as a more acceptable alternative. This permit requires residual chlorine be neutralized to less than 19 ug/L. This is the acute toxicity criterion promulgated in the Washington State Surface Water Quality Standards (Chapter 173-201A WAC).

The sampling exemption for facilities, which drop below the 20,000 pounds of fish per year or 5,000 pounds of food fed per month threshold, has been modified. The draft permit requires sampling of the offline settling basin every month the settling basin discharges. As stated above, the Department believes that the solids leaving the settling basins is the best indication of how well a facility is complying with their permit.

The monitoring and testing schedule is detailed in the permit under Condition S3. and S4. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

OTHER PERMIT CONDITIONS

POLLUTION PREVENTION PLAN

The Department has determined that the Permittee can prevent or minimize the release of pollutants through the development and use of a pollution prevention plan. The Permittee shall operate the facility in accordance with this plan along with any revisions directed by the Department to prevent an accidental release of pollutants under the authority of 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080. The pollution prevention plan shall be reviewed each permit cycle and updated as necessary.

GENERAL CONDITIONS

General conditions are based directly on state and federal law and regulations and have been standardized for this general NPDES permit.

ECONOMIC IMPACT ANALYSIS

A Small Business Economic Impact Statement (SBEIS) was prepared for this industry to meet the Upland Fin-fish Facility Rule (WAC 173-221A-100) adoption requirements. The first version of this general permit was in effect prior to the adoption of the rule. The rule adopted the substantive requirements of the first version of the general permit. The Department determined that the SBEIS prepared for the rule (WAC 173-221A-100) also met the general permit SBEIS requirements (WAC 173-226-120) for the third version of this permit. This permit has few substantial differences between it and the previous version of the permit except some minor changes in some of the monitoring requirements. The elimination of the percent removal monitoring requirements will largely offset the increase in continuous monitoring of the discharge from the offline settling basins.

PERMIT MODIFICATIONS

If necessary, the Department may modify this permit to impose numerical limitations to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this permit be issued for five years.

REFERENCES FOR TEXT

Environmental Protection Agency (EPA)

1991. Technical Support Document for Water Quality-based Toxics Control EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1974. Development document for proposed effluent limitations, guidelines, and new source performance standards for the fish hatcheries and farms point source category. Internal draft report. National Field Investigations Center, Denver CO. 237pp.

JRB Associates.

1984. Development of effluent limitations for Idaho fish hatcheries. Report to U.S. Environmental Agency. JBL Associates, Bellevue, WA. 119+ pp.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a general permit for the Upland Fin-fish Hatching and Rearing Industry. In writing this permit, the Department evaluated past permit compliance and any comments received. This permit contains the same effluent limitations, which were a part of the previous permits. Only minor changes were made to the permit to incorporate the newest version of permit shell language, to make the permit easier to understand, and to change some monitoring frequencies.

The Department published a Public Notice of Draft (PNOD) on January 5, 2000 in the state register and five major newspapers to inform the public that a draft of the revised permit and fact sheet are available for review. These newspapers include the Vancouver Columbian, the Seattle Post Intelligencer, the Bellingham Herald, the Yakima Herald Republic, and the Spokane Spokesman Review. On February 2, 2000, the Department extended the public comment period until March 15, 2000 via a notice in the State Register. Interested parties may also be notified by direct mailings.

Any interested party may comment on the draft permit and/or attend the public workshop/ hearing.

Public Workshop/Hearing: The public workshop and hearing on the proposed permit will be held on Thursday, March 2, 2000. The purpose of the workshop is to explain the general permit, answer questions, and facilitate meaningful testimony during the hearing. The purpose of the hearing is to provide interested parties an opportunity to give formal oral testimony and comments on the proposed general permit. The workshop and hearing will be held at the following location:

Washington State Department of Ecology
Main Auditorium
300 Desmond Drive
Lacey, Washington 98503

The public workshop will begin at 7:00 p.m. and last until 8:00 p.m. The formal public hearing will begin at 8:00 p.m.

Small Business Economic Impact Statement: Ecology has made a determination that the Small Business Economic Impact Statement (SBEIS) prepared to meet the Upland Fin-fish Facility Rule (WAC 173-221A-100), adopted in July 1990, satisfies the SBEIS requirements for this general permit. The proposed permit does not differ substantively from the expiring permit or the standards established for this industry in state regulation (WAC 173-221A-100 Upland Fin-fish Facilities).

How to Request Copies of the Proposed Permit: Requests for copies of the proposed permit, fact sheet, and SBEIS may be made by contacting Paul Stasch through the address noted below or by telephoning him at (360) 407-6446.

Where to Submit Written Comments: If you wish to comment on the proposed permit you may send your written comments to:

Paul Stasch
Water Quality Program
Washington Department of Ecology
P.O. Box 47696
Olympia, WA 98504-7696
E-mail: psta461@ecy.wa.gov

Written comments must be postmarked by Friday, March 15, 2000.

Final Determination: A final determination to issue this permit will not be made until Ecology evaluates all public testimony and written comments received pursuant to this notice. If Ecology issues the general permit, a copy of the final determination and the responsiveness summary will be sent to all persons who submitted written comment or gave public testimony.

Ecology is an equal opportunity agency. If you have special accommodation needs or require this document in an alternative format, please contact Paul Stasch at (360) 407-6446 or (360) 407-6006 (TDD).

APPENDIX B--DEFINITIONS

Acute Toxicity--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

BOD_5--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Class 1 Inspection--A walk-through inspection of a facility that includes a visual inspection and some examination of facility records. It may also include a review of the facility's record of environmental compliance.

Class 2 Inspection--A walk-through inspection of a facility that includes the elements of a Class 1 inspection plus sampling and testing of wastewaters. It may also include a review of the facility's record of environmental compliance.

Composite Sample--A flow-proportioned mixture of not less than six discrete aliquots. Each aliquot shall be a grab sample of not less than 100 ml and shall be collected and stored in accordance with procedures prescribed in the most recent edition of Standard Methods for the Examination of Water and Wastewater.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low; thus, its ability to dilute effluent is reduced.

Department--Department of Ecology

Director--The Director of the Department of Ecology or his/her authorized representative.

Epizootic—means the occurrence of a specific disease which can be detected in fifty percent of the mortality or moribund individual fish in an affected container or within an affected population, and which results in an average daily mortality of at least one-half of one percent of the affected individual fish for five or more days in any thirty day period.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

40 CFR--Title 40 of the Code of Federal Regulations. The Code of Federal Regulations is the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government.

Grab sample--An individual discrete water sample.

Lined Pond--Asphalt, concrete, plastic membrane, or similarly lined ponds. Ponds lined with gravel or soil are considered unlined.

Maximum Daily--The highest allowable sample value from a daily discharge taken during a calendar month.

mgd--Million gallons per day

mg/L--Milligrams per liter ("Net mg/L" = mg/L in Hatchery Effluent minus mg/L in Hatchery Influent)

ml/L--Milliliters per liter ("Net ml/L" = ml/L in Hatchery Effluent minus ml/L in Hatchery Influent)

Monthly Average--Calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the

authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/state permits issued under both state and federal laws.